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A school planning scheme involving 46 principle activities which occur over a 38-month period is presented. This scheme was developed for individuals responsible for the planning of vocational and technical schools, i.e., supervisors, state staff, university school plant planners, architects, and local school administrators. The activities represent the major sequential tasks involved in the combined process of program and facility planning. Program Evaluation and Review Techniques (PERT) is the mode of organizing and presenting the activities, which includes a chart relating each activity and its description to PERT event numbers and to time-sequence month numbers. A fold-out time-sequence chart, glossary, and the selected bibliography are included. This is one of a series of guides for the planning of instructional area facilities for occupational preparation programs. (EM)

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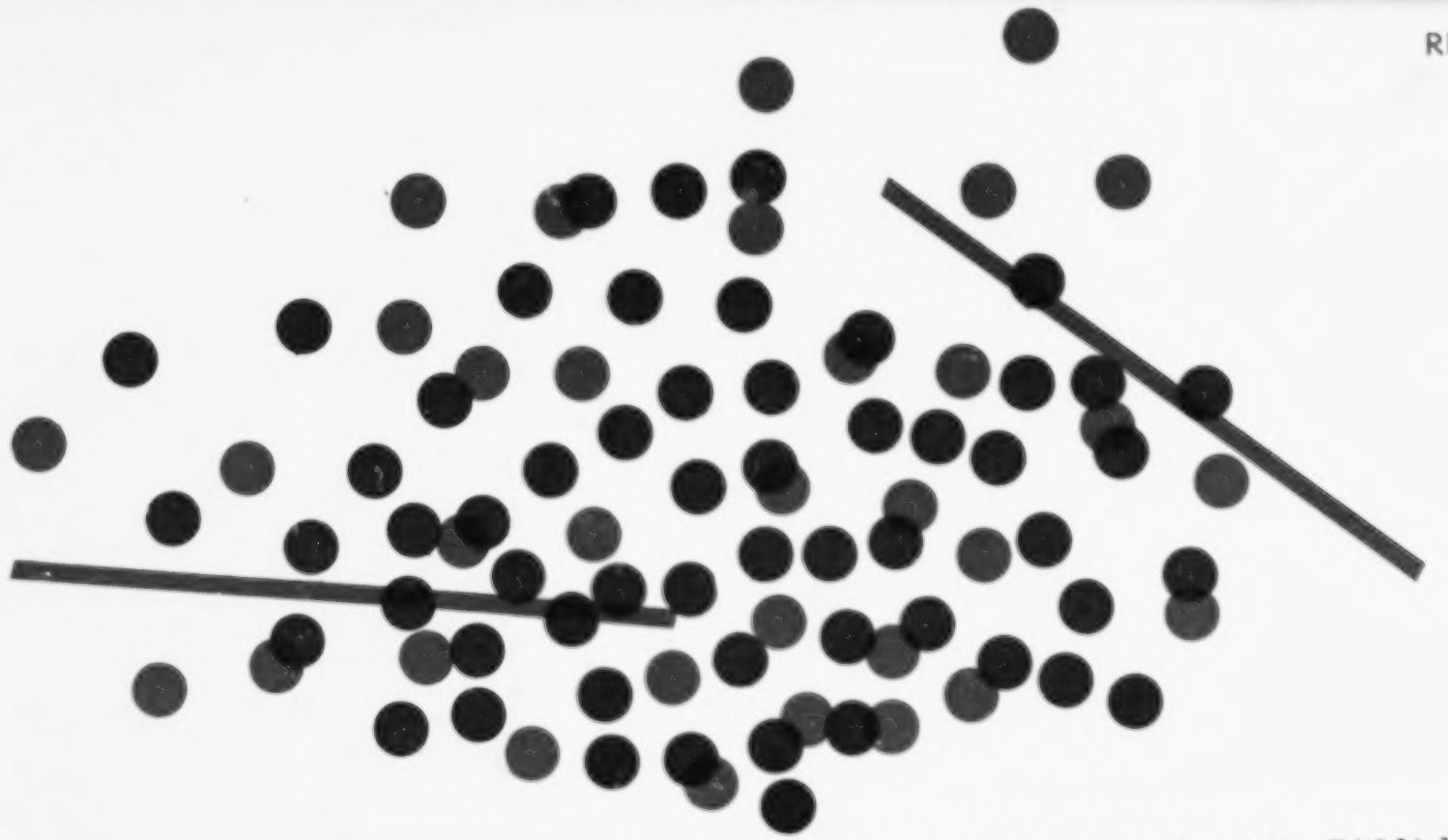
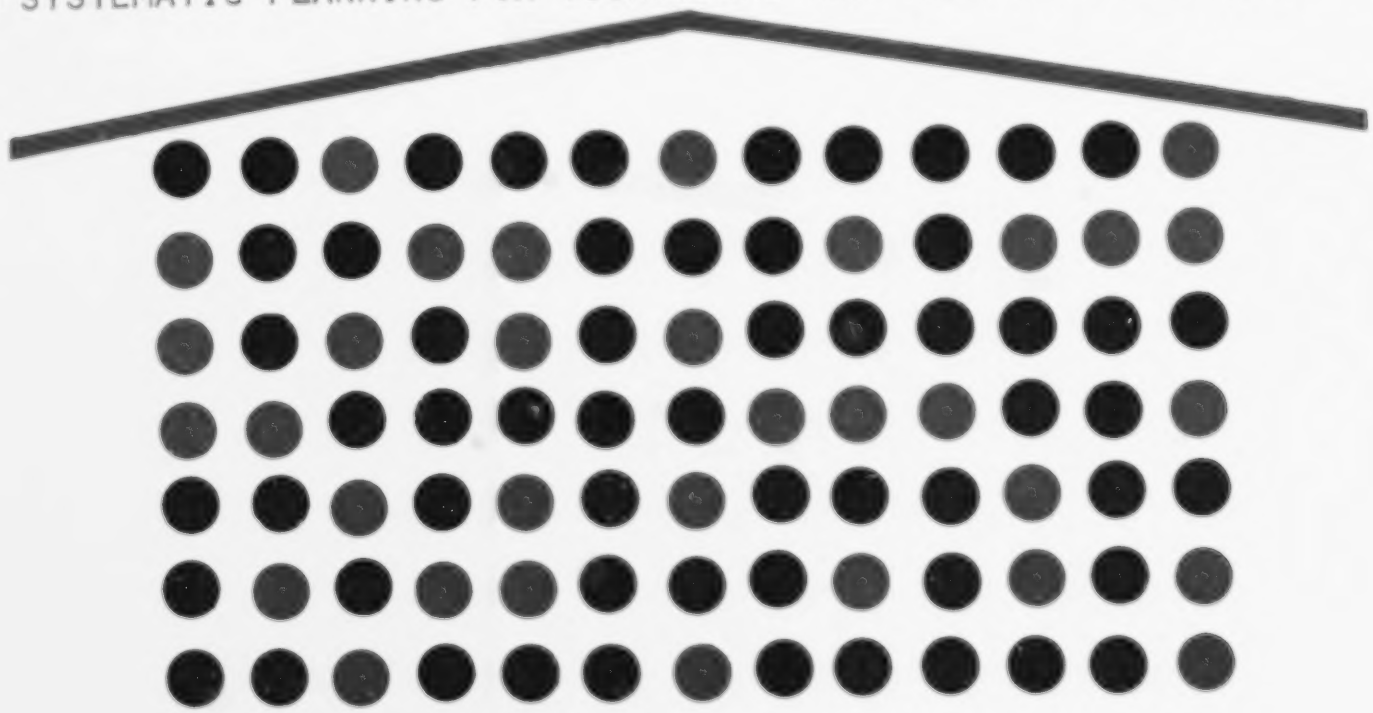


"A GUIDE TO SYSTEMATIC PLANNING FOR VOCATIONAL AND TECHNICAL EDUCATION FACILITIES"



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THE CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION
THE OHIO STATE UNIVERSITY
1900 KENNY ROAD, COLUMBUS, OHIO 43212

The Center for Vocational and Technical Education has been established as an independent unit on The Ohio State University campus with a grant from the Division of Comprehensive and Vocational Research, U. S. Office of Education. It serves a catalytic role in establishing consortia to focus on relevant problems in vocational and technical education. The Center is comprehensive in its commitment and responsibility, multidisciplinary in its approach, and interinstitutional in its program.

The major objectives of The Center follow:

1. To provide continuing reappraisal of the role and function of vocational and technical education in our democratic society;

2. To stimulate and strengthen state, regional, and national programs of applied research and development directed toward the solution of pressing problems in vocational and technical education;

3. To encourage the development of research to improve vocational and technical education in institutions of higher education and other appropriate settings;

4. To conduct research studies directed toward the development of new knowledge and new applications of existing knowledge in vocational and technical education;

5. To upgrade vocational education leadership (state supervisors, teacher educators, research specialists, and others) through an advanced study and inservice education program;

6. To provide a national information retrieval, storage, and dissemination system for vocational and technical education linked with the Educational Resources Information Center located in the U. S. Office of Education.

RESEARCH 22

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A GUIDE TO SYSTEMATIC PLANNING FOR VOCATIONAL AND TECHNICAL SCHOOLS.

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medical technology, and metallurgy technology. The Center has also prepared a general guide for planning facilities for any single occupational preparation program, two or more such programs, or an entire school. Several of these publications are now available from The Center and all should be available in early 1969.

In using this systematic planning guide, vocational personnel will also find it helpful to use the basic planning guide and the specific planning guide relating to the occupational area.

Recognition is given to Robert McKee, president of Northern Virginia Community College, for his assistance with the principal activities Time Sequence Chart; to A. J. Miller, Center development training coordinator and E. J. Morrison, Center research coordinator for their thoughtful review and suggestions in the development of this document. Acknowledgement is also due Mrs. Joann King, assistant research coordinator, and Mrs. Sally Markworth, editorial director, for their assistance in refining the manuscript prior to publication. Richard F. Meckley, Ivan E. Valentine and Zane McCoy of The Center composed the facility project staff.

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INTRODUCTION

The planning of facilities for vocational and technical education programs is an enterprise involving personnel, buildings, sites, equipment, instructional materials, and the acquisition and expenditure of funds. Vocational-technical school administrators, boards of education, lay advisory groups, and staff personnel must therefore possess a sound understanding and appreciation of the interrelationships of the components involved in the process of moving from the point of determination of need to an on-going educational program within a legal framework.

The first step of the planning process begins with the identification of a clear-cut goal--the desire to do or create something. The translation of desire to attainment is the purpose of planning. The ease of goal accomplishment is in direct proportion to the care taken in the formulation of a plan of action. Prior to embarking on any planning activity, a careful assessment must be made of the available resources. The critical resources that influence any enterprise are: 1) personnel, 2) money, and 3) time. These factors, along with legal and situational constraints, provide the framework for decision making in relation to planning. The ultimate success of the plan will be determined to a great extent upon how well these resources are utilized. Basically, any plan should seek to answer the question of--Who? What? When? Where? and How?-- in a meaningful and yet comprehensive manner.

The second step consists of breaking down the overall planning tasks into logical units of work. This process begins with large, general divisions of work and progresses through further subdivision to more specific and manageable work packages. Finally, identification is made of all the activities that go to make up the work packages.

A third planning step involves the assignment of personnel for the accomplishment of specific tasks and the arrangement of tasks in a time sequence. This phase requires a careful analysis of the interdependence of tasks.

A fourth planning step involves the development of means for communicating, implementing, and evaluating the plan. Communication, in this context, refers to translating the plan to all participants in such a way that they clearly understand their responsibilities, their objectives, and the relationship their tasks have on the achievement of the overall goal. Implementation is primarily concerned with obtaining and allocating resources necessary for goal achievement. Evaluation is concerned with continuous assessment of the plan and making adjustments to meet changing needs.

The key to efficient planning is a systematic ordering of tasks and personnel responsibilities in a sequential pattern over a given period of time. Each person involved in the process needs to know the effect his production has on the output of others and the total project.

Within this perspective, this document seeks to depict the principal planning activities and personnel responsibilities involved in the total process of planning vocational-technical schools, and to illustrate their relationships to each other in time. This is accomplished through utilization of two systematic planning techniques--Program Evaluation and Review Techniques (PERT) and Principal Activities and Time Sequence Chart. Each of these techniques will be described and illustrated at a later point.

PRINCIPAL PLANNING ACTIVITIES

A set of principal activities for planning vocational and technical educational facilities are described below for your guidance. They should be useful to the reader in planning facilities for a totally new district or within an existing organization. In the latter case, those activities which are inappropriate to the existing situation may be treated as completed. In no case should the projected activities and responsibilities be viewed as rigid. Local circumstances may vary and require rearrangement of order or, in some instances, the addition or deletion of critical activities. Reference numbers provided in columns to the left of the activities will permit ready reference to the PERT Network and Time Sequence Charts, which will later be used to illustrate systematic planning.

REFERENCE NUMBER		ACTIVITY	DESCRIPTION
PERT NETWORK EVENT NUMBERS	TIME-SEQUENCE MONTH NUMBERS		
1 - 2	1	Appoint Ad Hoc Advisory Committee	A group of persons, usually outside the educational profession selected for the purpose of offering advice and counsel to the school regarding the vocational program. Usually consists of 50 to 60 members. Appointed by agency or agencies initiating the organization of the vocational and/or technical school. The committee functions throughout the organization phase and is disbanded when the board of education of the vocational-technical school is organized.
1 - 3	1 - 4	Conduct Occupational Survey	This activity consists of surveys of student, industry, community, state, regional, and national needs. It usually requires two or three months and may provide the supportive data for establishing a local program of vocational and technical education. It is usually a cooperative activity of local and state educators, and local industry and business.
3 - 4	5	Develop Program	Review educational survey and determine program needs of the community. This phase is usually planned and coordinated jointly between the local district and the appropriate state agency. A minimum of 30 days is essential for this operation.

REFERENCE NUMBER		ACTIVITY	DESCRIPTION
PERT NETWORK EVENT NUMBERS	TIME-SEQUENCE MONTH NUMBERS		
4 - 5	6	Develop Proposal	The establishment of a local vocational or technical education program usually requires state approval. A proposal is prepared by the district desiring such a school and submitted to the appropriate division of the State Department of Education. The proposal identifies the need and presents a plan for meeting such needs. The plan includes a description of the proposed program, the number of students to be served, the facilities required to house the program, and the method of financing the construction of facilities and operation of the program.
5 - 6	7	State Approval of Proposal	The proposal approval by the appropriate legally constituted state authority authorizes the organization of the vocational or technical school. In some cases, the state may also provide enabling means through monetary grants. This is a state responsibility requiring approximately one month from the date of the proposed submission.
6 - 7	8	Organize Board	A governing board is appointed by a legally constituted authority which organizes for immediate action. This activity is normally accomplished in one month.
7 - 8	9	Select, Employ Initial Clerical Administrative Staff	The initial clerical-administrative staff, such as a temporary secretary and/or clerk-treasurer, is often appointed by the board within one or two weeks after board organization. Other clerical staff are added as needed after the appointment of chief administrator (administrative responsibilities).

REFERENCE NUMBER		ACTIVITY	DESCRIPTION
PERT NETWORK EVENT NUMBERS	TIME-SEQUENCE MONTH NUMBERS		
7 - 9	9	General Advisory Committee	The board of education, upon its organization, will appoint a general advisory committee. This committee, usually numbering 10 to 15, is a permanent committee organized to offer advice and counsel to the school regarding the vocational-technical program.
7 - 10	9	Select and Employ Chief Adminis-trator	The governing board, usually with professional assistance, establishes a job description for a chief administrator. The position opening is publicly announced and applications are solicited from university placement offices. Screening, interviewing, and final selection of chief administrator will require at least one month.
8 - 10	9	Prepare Temporary Operating Budget	This activity is an initial concern of the newly organized board. Sources of operating funds help determine direction. A temporary appropriation is often established to permit operation as soon as funds are available. The budgeting is the responsibility of appropriate fiscal officer. Approximately one month is allotted for this activity.
10 - 11	10	Occupa-tional Committees	A group of local occupational specialists, usually five for each occupational area, appointed by the board to advise the school on matters pertaining to the particular occupation. Generally, the committee should include an equal number of representatives of labor and manage-ment.

REFERENCE NUMBER		ACTIVITY	DESCRIPTION
PERT NETWORK EVENT NUMBERS	TIME-SEQUENCE MONTH NUMBERS		
10 - 12	10	Select and Employ Administrative Staff	The chief administrator prepares job descriptions for administrative staff. Position openings are publicly announced and applications solicited from university placement offices. Screening, interviewing, and recommending is the responsibility of the chief administrator. The board approves or rejects recommendations and proffers contracts accordingly.
12 - 13	11	Plan Facility and Operating Fund	Planning for obtaining construction equipment and operation funding is an immediate concern of board and administration. In the event the program and facilities are not completely funded by the state, cost estimates must be made and a campaign planned to win voter approval.
12 - 14	11	Select Legal Counsel	Legal counsel is often employed for site negotiation and legal guidance if a bond issue is required. This activity may require up to a month and the responsibility for its accomplishment rests with the governing board and chief administrator.
12 - 15	11	Establish Facilities Document File	Permanent files are prepared to preserve and store contracts, bonds, and guarantees, equipment parts and operating manuals, final drawings and specifications. A responsibility of the clerk-treasurer.
12 - 16	11	Prepare First Year Operating Budget	A permanent operating budget based on firm estimates of operating costs is prepared. The responsibility is usually assumed by the chief administrator.

REFERENCE NUMBER		ACTIVITY	DESCRIPTION
PERT NETWORK EVENT NUMBERS	TIME-SEQUENCE MONTH NUMBERS		
12 - 17	11	Select Educational Plant Consultant	Unless plant consultant services are provided by a state agency, an educational plant consultant should be retained to assist with the building program. Such service is available from private firms and universities. Selection of a consultant may require up to a month and is the joint responsibility of the chief administrator and governing board.
13 - 18	12	Seek Private Funds	Contact local industry for facility and/or equipment funds. This may be accomplished by a lay committee or the chief administrator, or a combination of the two. This project will require a period of one month.
15 - 17	11	Select Architect	Preliminary screening is usually the responsibility of the chief administrator. The use of the standard questionnaire developed by the National Council on Schoolhouse Construction and the American Institute of Architects is recommended. The governing board makes the final selection after interviewing applicants, viewing completed projects, and consulting with other clients. A contract defining rights and responsibilities of each party and stipulating a fee schedules is prepared and signed. The legal counsel for the board must either prepare or approve this contract prior to board approval.

REFERENCE NUMBER		ACTIVITY	DESCRIPTION
PERT NETWORK EVENT NUMBERS	TIME-SEQUENCE MONTH NUMBERS		
17 - 19	12	Plan Facilities	Preliminary planning of facilities is begun. Such planning involves a study of the proposed program and its objectives in order to determine facility needs. Facility planning guides such as those developed at The Center for Vocational and Technical Education, The Ohio State University are recommended to facilitate this task (see page 23). Specific guides are available for automotive trades, animal science, metallurgy, machine trades, data processing, home economics occupations, business and office education, and electrical technology. The General Guide for Planning Occupational Preparation Facilities will be helpful in planning for those areas not covered in specific guides, as well as for related administrative and service requirements. This activity is the responsibility of the administrative staff and/or educational plant consultant. Teachers should be involved in planning to the fullest extent possible. Approximately one month is allotted to complete the preliminary planning.
17 - 20	12	Site Selection and Option	A decision on area of location, unless previously determined, is made. Visits are made to various sites. The architect and plant planners review potential sites and make recommendations. Negotiation is made with site owners. The responsibility is assumed jointly by the chief administrator, board, and architect. Legal assistance is often required. Two months is the approximate time required.

REFERENCE NUMBER		ACTIVITY	DESCRIPTION
PERT NETWORK EVENT NUMBERS	TIME-SEQUENCE MONTH NUMBERS		
18 - 21	13	Submit Bond and Operating Issue	Bond and operating issues are submitted to the electorate. The time will vary with legal requirements, but it is usually 90 days prior to election. This activity is the responsibility of the governing board, the chief administrator and legal counsel.
19 - 23	13	Prepare Educational Specifications	Educational specifications for required facilities are developed by either school personnel or outside school facilities specialists prior to the architect starting preliminary drawings. One month is the approximate time required.
21 - 22	13 - 14	Conduct Funding Campaign	Previously formulated campaign plans are carried out. Usually the responsibility of the board, administrators, and lay committees. The activity requires a period of about two months.
23 - 27	14	Prepare Equipment Specifications	Instructional equipment bid specifications are prepared by department heads. This activity usually requires two weeks to a month.
23 - 28	14	Prepare Preliminary Drawings and Rendering	Preliminary drawings and rendering of proposed structure and site development by architect. Cost estimates should be provided at this time. Acceptance by board-chief administrator. One month required.

REFERENCE NUMBER		ACTIVITY	DESCRIPTION
PERT NETWORK EVENT NUMBERS	TIME-SEQUENCE MONTH NUMBERS		
24 - 28	15	Obtain State Funding	Submit evidence to the appropriate state agency that local funding requirements have been met. Request release of state funds for facility construction. Responsibility of the local chief administrator. It will require at least one month for state action.
25 - 29	15	Sell Bonds	An advertisement for the sale of bonds is made immediately after passage of bond issue. It is the joint responsibility of the chief administrator, legal counsel, and clerk-treasurer and may require board action. It usually requires 30 days to complete the sale.
26 - 28	15	Survey Site	Employ surveyor to prepare topographical survey of selected site. Arrange for test boring soil according to architects specifications. This task may be the responsibility of either the architect or the chief administrator depending upon the wishes of the board of education. Generally, it will require one month for completion.
28 - 29	16	Prepare Educational Supply List	Department heads, librarians, etc., prepare a list of educational supplies required for program. Specifications lists are desirable. One to two months is allowed for this activity.
28 - 30	16	Purchase Site	Option is taken up on site previously selected. Meeting necessary legal requirements is the responsibility of legal counsel. Purchase may require board action and can be completed in two weeks.

REFERENCE NUMBER		ACTIVITY	DESCRIPTION
PERT NETWORK EVENT NUMBERS	TIME-SEQUENCE MONTH NUMBERS		
28 - 31	16	Prepare 1/8" Working Drawings	Working drawings are prepared by architect and reviewed by the administration and department heads. Discussions on placement of equipment made. The activity requires approximately two months.
28 - 32	16	Invest Bond Funds	If permissible under state law, contact local banks for interest rates. Invest local bond money at best rate on short term notes. Responsibility of chief administrator. Should be accomplished as soon as possible.
28 - 33	14 - 5	Prepare Program Curriculum Brochure	Initial brochure announcing school's general concepts, programs, etc., is prepared. Primarily a publicity item, it should be ready for distribution about two months after selection of chief administrator. The total time requirement for the activity is one and a half months. A curriculum brochure outlining the courses to be offered is prepared. The brochure should be available to prospective students at least four months prior to receiving applications for admission. The responsibility for the brochures should be vested in the directors, deans, and department heads.
28 - 40	16	Prepare Second Year Operating Budget	Estimates of second-year operation fiscal requirements are made and available funds are appropriated. The estimate should include the cost of operation of any facility completed in that year. This activity is the responsibility of the chief administrator and requires approximately one month.

REFERENCE NUMBER		ACTIVITY	DESCRIPTION
PERT NETWORK EVENT NUMBERS	TIME-SEQUENCE MONTH NUMBERS		
28 - 43	16	Recruit, Select, and Employ Profes-sional Staff	The recruitment, selection and employment of the professional staff may be accomplished at any time throughout a period of 18 months. Ideally, all professional staff should be under contract no later than 30 days prior to opening day. The responsibility for selecting faculty lies with the appropriate directors, deans, and adminis-trators.
29 - 41	22	Order Education Supplies	Administration contracts for educational supplies at least ten months prior to opening of school.
31 - 34	18 - 19	Prepare and Review 1/4" Working Drawings	One-quarter inch working drawing of building floor plans is prepared by the architect which includes layout of equipment. Final review and acceptance by department heads, administration and board is required. Two months is allotted for this activity.
33 - 42	19	Prepare and Distri-bute Catalog	This activity is applicable primarily to technical colleges. As soon as program development and appointment of directors or deans is completed the preparation of a catalog may begin. The catalog should be available to prospective students at least three months prior to the opening of school. Responsibility for this activity rests with directors, deans, and depart-ment heads.
34 - 35	20	Prepare Detailed Drawings, Specifi-cations	Final drawings are readied for bid with necessary approval by department heads, administration and governing board.

REFERENCE NUMBER		ACTIVITY	DESCRIPTION
PERT NETWORK EVENT NUMBERS	TIME-SEQUENCE MONTH NUMBERS		
35 - 36	21	Advertise for Equipment Bids	Program equipment specifications lists are distributed to suppliers by administration. Advertising and reviewing bids and awarding contracts is a board responsibility. One to two months concurrent with construction bids is the time required.
35 - 37	21	Advertise for Construction Bids	Advertising for construction bids is completed. Board action is taken to meet legal requirements. Coordination is undertaken by chief administrators. The bid period is usually one month. The board reviews and awards contracts.
37 - 38	22	Prepare Facilities Construction Budget	Appropriations are established for construction and equipment based on contracts let. The responsibility is assigned to the chief administrator. Approximately one week required.
37 - 39	25 - 26	Employ Supervisory Non-Teaching Personnel	Employ supervisory non-teaching personnel such as building and grounds supervisor, cafeteria supervisor, etc., at least six months prior to opening of school. Responsibility of administrative staff.
37 - 44	22 - 33	Construct and Equip Buildings	This activity is initiated by board acceptance of bids (may require approval by higher authority in some cases) and the awarding of contracts. Completion will usually require a full year. Program equipment installation dependent on stage of building construction. Loose equipment is usually the responsibility of school. Coordination and cooperation with architect and contractors is required.

REFERENCE NUMBER		ACTIVITY	DESCRIPTION
PERT NETWORK EVENT NUMBERS	TIME-SEQUENCE MONTH NUMBERS		
39 - 44	26 - 33	Select, Employ Maintenance Personnel	Custodians, cooks, and similar personnel are selected six to seven months prior to opening of school. Effective date of contract is usually 30 days prior to opening of school. This activity is the responsibility of administration and non-teaching supervisory personnel.
40 - 45	26 - 33	Plan Dedication	Set time, date, and place of dedication of new facility. Plan program time, events, and participants. Identify participants and contact as to availability. Prepare platform and other special guest lists. Plan and prepare for guided tours of facilities. Plan and arrange for traffic supervision and control. Plan and arrange for printed programs to include basic information concerning the facilities. Prepare and schedule news media releases concerning the dedication program.
42 - 45	22 - 34	Recruit, Select, and Admit Students	The school normally begins accepting students one year prior to opening. This process should continue until enrollment limits are reached or school opens. This is primarily an administrative responsibility.
44 - 45	34	Accept and Occupy Facility	Upon notification by the architect, the board and administration inspect facilities. A deficiency check-off list should be prepared to facilitate follow-up inspection. When corrections have been satisfactorily completed, the board formally accepts the facilities and occupancy may proceed.

REFERENCE NUMBER		ACTIVITY	DESCRIPTION
PERT NETWORK EVENT NUMBERS	TIME-SEQUENCE MONTH NUMBERS		
45 - 46	35 - 38	Dedication Program	Hold dedication program and open house.
		Evaluation Committees	The administrative staff appoints separate evaluation committees for program and facilities. The function of such committees should be the development of instruments to permit total staff participation in the evaluation process. Committees should be instructed to submit evaluation and recommendations prior to the close of the first school turn.

SYSTEMATIC PLANS

The two planning methods utilized are: 1) PERT (Program Evaluation and Review Technique) and 2) The Principal Activities and Time Sequence Chart. Although the two methods are dissimilar in structure they, nevertheless, can be used to provide a visual illustration of identical planning activities. The PERT network illustrates more vividly the interrelationship of events and activities. Dependencies are clearly established by a network of connecting lines. In addition, PERT provides a mechanism for more precise time estimates. On the other hand, the Time Sequence Chart illustrates the activities in a gross time relationship without references to codes or footnotes. The selection of which is most useful for a given task is left to the discretion of the reader.

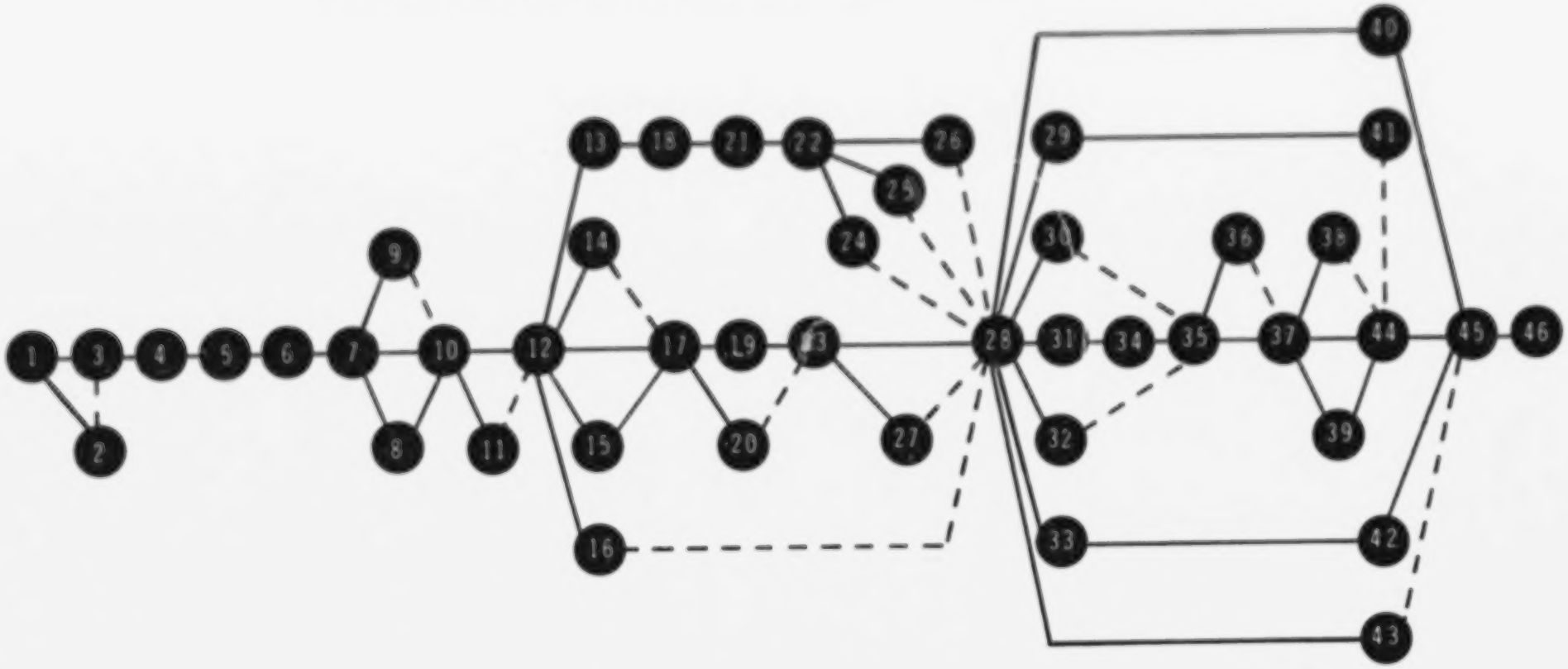
The following paragraphs are devoted to providing information necessary for the interpretation and implementation of the projected systematic plans--PERT (Program Evaluation and Review Technique) and Principal Activities Time Sequence Chart.

PERT NETWORK

The PERT Network (see page 17) requires some basic information to facilitate its use. The flow of the network always moves from left to right. The circles represent events and may be either the start or completion of an activity. Events do not consume time, personnel or resources. Solid lines between two events indicate activities. Activities consist of tasks or jobs in the project requiring utilization of personnel and resources over a period of time. The dotted lines usually indicate dummy activities which do not consume time, resources, or personnel. A dummy activity is used to illustrate time dependency of an event. In theory the activities in any given path must be completed before the next event can occur. When parallel lines merge to any given point in the network, this is called a restraint, and indicates that all tasks on incoming lines must be completed before the project can move on.

The PERT network for planning vocational and technical education schools provides a logical, step by step depictment of major events and activities. The network starts at the point where it has been decided that a need for such a vocational and/or technical school exists and continues through to its occupancy and operation. Once the principal planning activities have been identified, as illustrated on pages 3-15, a network is constructed to provide a graphic representation of the paln. This graphic representation shows the interrelationship, interdependence, and priorities of the elements of the plan. The plan may be applied to already established vocational and technical school districts by

PERT NETWORK FOR VOCATIONAL AND TECHNICAL FACILITY PLANNING



EVENT	ACTIVITY
1- 2	Appoint Ad Hoc Committee
1- 3	Conduct Occupational Survey
3- 4	Develop Program
4- 5	Develop Proposal
5- 6	State Approval of Proposal
6- 7	Organize Board
7- 8	Select and Employ Initial Clerical Staff
7- 9	Appoint General Advisory Committee
7-10	Select and Employ Chief Administrator
8-10	Prepare Temporary Operating Budget
10-11	Appoint Craft Committee
10-12	Employ Administrative Staff
12-13	Plan Facility-Operating Funding
12-14	Select Legal Counsel
12-15	Establish Facilities Document File
12-16	Prepare First Year Operating Budget
12-17	Select Educational Facility Planner

EVENT	ACTIVITY
13-18	Seek Private Funds
15-17	Select Architect
17-19	Preliminary Facility Planning
17-20	Site Selection and Option
18-21	Submit Local Bond and Operating Issue
19-23	Prepare Educational Specifications
21-22	Conduct Local Bond and Operating Campaign
23-27	Prepare Equipment Specifications
23-28	Prepare Preliminary Drawing and Rendering
22-24	Obtain State Funding
22-25	Sell Bonds
22-26	Survey Site
28-29	Prepare Educational Supply List
28-30	Purchase Site
28-31	Prepare ⅛" Working Drawing
28-32	Invest Bond Funds
28-33	Prepare Program-Curriculum Brochures

EVENT	ACTIVITY
28-40	Prepare Second Year Operating Budget
28-41	Recruit, Select and Employ Professional Staff
29-41	Order Educational Supplies
31-34	Prepare and Review ¼" Working Drawings
33-42	Prepare and Distribute Catalog
34-35	Prepare Detailed Drawings and Specification
35-36	Advertise for Equipment Bids
35-37	Advertise for Construction Bids
37-38	Prepare Facility Construction Budget
37-39	Employ Supervisory Non-Teaching Personnel
37-44	Construct and Equip Buildings
39-44	Employ Maintenance Personnel
40-45	Plan Dedication Program
42-45	Recruit, Select and Admit Students
44-45	Accept and Occupy Facilities
45-46	Prepare for Dedication Program

superimposing the existing organization at the appropriate place on the network. Due to space limitations, this plan contains only major activities. A comprehensive plan would require the inclusion of many additional activities. In fact, many of the individual activities in the master network herein, merit individual PERT plans because of the scope and multiplicity of activities.

Advantages of such a plan are: 1) all vital phases of planning are considered; 2) a delineation of the tasks that may be carried out concurrently is provided; and 3) events which control the future progress of the project are highlighted. A further refinement of the network may be obtained by applying the PERT time formula to the network in accordance to established PERT procedures (see bibliography--Cook, Desmond L., Program Evaluation and Review Technique, pages 21-31). Such application will provide the planner with information about when the tasks must be completed, as well as the nature of the tasks. Since each project is unique, no attempt has been made to indicate rigid time estimates; however, in general practice a project of this scope would encompass a time period of approximately three years.

The network is also helpful as a work-progress instrument. If each event is circled or otherwise marked upon its completion, the chart can provide a quick work-progress reference for the administrator and planners.

PRINCIPAL ACTIVITIES TIME SEQUENCE CHART

The Principal Activities Time Sequence Chart (see page 19) shows the relative placement in time of various key planning activities. The time factor in months is represented along the horizontal axis of the chart, numbered consecutively from left to right to provide a sequential time relationship. The horizontal bars contain the activities to be performed. The heavy vertical lines indicate restraints upon subsequent activities. In some instances such a line may restrain only one horizontal line of activities; in others, it may restrain the entire program. Theoretically, in any given horizontal bar, all activities to the left of any heavy vertical line must be completed before the next activity can begin. In the sample chart there are several critical restraints which affect the progress of all program phases. They are indicated by a heavy vertical line between 8 and 9, 10 and 11, 14 and 15, 15 and 16, 21 and 22. For example: the heavy vertical line between the 8th and 9th month indicates that the Board must be legally organized before the general advisory board can be appointed, the chief administrator selected, initial clerical-administrative staff selected, or the temporary operating budget approved.

The chart is adapted from a planalog analysis. Planalog is a patented graphic display device which permits rapid construction and modification of time sequence relationship.

TIME SEQUENCE CHART

CATION FACILITY PLANNING

15	16	17	18	19	20	21	22	23	24	25	26-33	34	35-38
	Recruit, Select and Employ Professional Staff												
											Plan Dedication		
	Prepare Second Year Oper. Budget						Prepare Facility-Construc. Budget						
State Funding													
Sell Bonds	Invest Building Funds												
Site Survey	Purchase Site												
	Prepare 1/8" Working Drawings		Prepare 1/4" Working Drawings		Prepare Contract Drawings-Specifications	Advertise Construction Bids	Construct and Equip Building					Accept and Occupy	Dedication Program
						Advertise Equipment Bids							
	Prepare Educational Supply List						Order Educational Supplies						
d Brochures	Prepare and Distribute Catalog		Select and Admit Students										
										Employ Supervisory Non-Teaching Personnel			
											Employ Maintenance Personnel		

PRINCIPAL ACTIVITIES T

FOR

VOCATIONAL AND TECHNICAL EDU

TIME IN MONTHS

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Conduct Occupational Survey				Develop Program	Develop Proposal	State Approval of Proposal	Organize Board						
Ad Hoc Advisory Committee								Appoint General Advisory Committee	Appoint Craft Committee				
								Select and Employ Chief Administrator	Employ Administrative Staff				
								Select and Employ Initial Clerical-Adm.		Establish Facilities Document File			
								Prepare Temporary Operation Budget		Prepare First Year Oper. Budget		Submit Bond and Operating Issue	
										Plan Facility Oper. Funding	Seek Private Funds For Facilities	Conduct Local Funding Campaign	
										Select Legal Counsel			
										Select Architect	Site Selection and Option		
										Select Educational-Fac. Planner	Preliminary Facilities Planning	Prepare Educational Specifications	Prepare Preliminary Drawing-Render.
													Prepare Equipment Specifications
													Prepare Program a Curriculum

DEFINITION OF TERMS

Facility Planning Guide--An instrument to guide facility planners in the recording of decisions on educational programs which have important implications for facilities.

Educational Specifications--A description of the educational program and facility requirements to guide the architect in building design. Educational specifications normally contain general information on the community, general building design, a list of facilities to be provided, and detailed room descriptions.

PERT (Program Evaluation and Review Technique)--A project management information system which graphically depicts important events and activities, their interrelationships and time estimates.

Time Sequence Chart--A graphic planning technique showing the activities of a project and their dependencies with emphasis on the time dimension.

Ad Hoc Advisory Committee--A temporarily appointed committee to determine the feasibility and to assist in the organization of a proposed new school.

General (Lay Advisory) Committee--A group of interested lay citizens appointed to advise and assist school officials in planning and developing program and facilities for occupational education.

Occupational (Craft) Committee--Committees representing the occupational areas for which preparation programs are being planned.

Special Facility Consultant--A specialist employed by the responsible agency to advise and make recommendations in the school plant planning process.

Facility--A piece of land, a building site, a building, or a part of a building.

Site--A land area within the school community upon which facilities are to be constructed.

Bonding--A method of borrowing money by issuing bonds which the people of the school district agree to purchase back with interest over a designated period of years.

Constraint--The relationship of an event to the succeeding activity whereby the activity may not start until the preceding event has occurred.

Sequence--The ordering of activities and events, one after another, in the planning process.

Preliminary Drawing--Initial floor plans of the facility developed by the architect for consideration by the responsible educational agency.

Rendering--A pictorial representation of the external features of the planned new school prepared by the architect.

Topographical map--A graphic representation of the configuration of the surface of prospective sites, including relief and position of their natural and man-made features.

Test Boring--A technique for extracting vertical layers of soil from prospective building sites to determine their suitability for supporting building construction.

Option--An agreement between the responsible educational agencies and land owner for purchase of the land at some future date for a stipulated purchase price.

Working drawings--A set of drawings prepared by the architect which describe in detail the work to be performed by the contractor.

Contract--A binding agreement between two or more persons or parties specifying rights and obligations of each.

Bid--A firm cost commitment for the performance of services and supply of materials necessary to meet contractual obligations as specified by the architect.

Short-Term Note--The investment of capital outlay funds for a short period of time at a given rate of interest.

Fiscal--Relating to financial matters such as taxation, public revenues, and public debt.

Built-in Equipment--Equipment that is an integral part of the building.

Movable Equipment--Equipment that is portable from one location to another without appreciable damage or change to the location from which it is removed or to the location where it is installed.

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